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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,369	10/23/2003	Lizhi Wang	080398.P229C	2593

7590 02/10/2005  
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EXAMINER

DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/693,369

**Applicant(s)**

WANG, LIZHI

**Examiner**

Mehrdad Dastouri

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on .
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/23/2003
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's preliminary amendment filed October 23, 2003, has been entered and made of record.

### ***Information Disclosure Statement***

2. The information disclosure statement filed April 1, 2004, refers to the instant invention application number (10/693,369). However, the filing date, first name inventor, and attorney docket number do not correspond to the instant invention application. Considering the content of the IDS U.S. patents and non-patent literatures, it appears that the submitted IDS belong to another application. Consequently, the information referred to therein has not been considered.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 recites, "removing resulting adjustment." The specification merely recites in Paragraph 0007, "The adjustment made to the Laplacian images are correspondingly

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removed from the orientation data and the energy data.", and in Paragraph 0021, "The adjustment is later removed without causing any variances to the image."

Subsequent filtering of the adjusted Laplacian image will result in substantial changes in the orientation map and energy map derived from Laplacian image. The specification does not describe the manner the resulting adjustment is removed, and from which set of resultant images these adjustments are removed.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greenspan et al. (Hereinafter referred to as Greenspan) (U.S. 5,956,427) further in view of Baxes (Digital Image Processing, Principles and Applications).

Regarding Claim 1, Greenspan discloses a method of applying steerable filter to Laplacian images of a steerable pyramid, comprising:

getting a Laplacian image from corresponding Gaussian images in a steerable pyramid (Figure 2; Column 4, Lines 64-67, Column 5, Lines 1-20. Laplacian images (Pyramid  $L_0-L_N$ ) of Gaussian images (Pyramid  $G_0-G_N$ ) are generated from original image  $G_0$ );

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applying a steerable tilter to the adjusted Laplacian image to generate orientation data and energy data (Column 2, Lines 65-67; Column 6, Lines 19-67, Column 7, Lines 1-9).

However, Greenspan et al do not explicitly disclose verifying the Laplacian image for negative values, adjusting the Laplacian images to eliminate negative values, and removing resulting adjustment.

It is well known in the art that generating Laplacian images can produce pixel intensity values less than zero (pixels with negative intensity values). It is also well known to adjust these negative values to generate an image with only positive and zero pixel values.

Baxes discloses applying Laplacian operator for image edge enhancement and adjusting pixel values in Laplacian images to generate images with non-negative pixel values (Page 359). Furthermore, Baxes discloses the well-known concept of histogram sliding operation as an addition or subtraction of a constant brightness to all pixels in the image (Pages 73-75, Histogram Sliding and Stretching. The sliding operation adds an offset to the image brightness. This offset can be addition of a positive value to eliminate all generated negative pixel values. The offset value can alternatively be a value to compensate the previously applied partial shift for the adjustment of the Laplacian pixel values.).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Greenspan et al invention according to the teachings of

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Baxes to adjust pixel values in Laplacian images to generate images with non-negative pixel values and remove the resulting adjustment subsequently to generate corresponding non-negative orientation map images and / or energy map images because it is an extremely well known procedure customarily implemented in digital image processing to eliminate negative pixel values created from edge enhancement filtering. This procedure further compensate for the resulted partial shift due to the adjustment of the Laplacian pixel values produced from mathematical manipulation of the image intensity data.

#### ***Contact Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Mehrdad Dastouri  
Primary Examiner  
Art Unit 2623  
February 7, 2005

**MEHRDAD DASTOURI**  
**PRIMARY EXAMINER**

*Mehrdad Dastouri*